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Young children sleep whenever they are tired. Children from about 6 years of age onward average about 8 hours of sleep each night. Fires are occasionally kept burning late into the night when mosquitoes are troublesome.

Men micturate in a standing position; women squat on the heels or stand with knees bent. Both sexes defecate in a position squatting on both heels.

Cutting habits vary according to the instrument employed. In general, a knife is moved away from the body, a native cutting or scraping instrument toward the body. Adzing is, of course, toward the body.

Heavy weights, such as canoes, are lifted from the ground with the arms in front of the body and carried just clear of the ground. A house roof is carried on the shoulders of a number of men who get inside the roof while it is on the ground and hoist it onto their shoulders. A few coconuts are carried in the hands, with or without a basket; a large number are balanced on the shoulder. Many coconuts are carried on a rough carrying pole, weighted at both ends and balanced at its middle point on the shoulder. The right shoulder is generally preferred. Women generally carry weights balanced on the head, using a pad made of a bunch of leaves placed between the head and the burden.

Climbing coconut trees and coconut husking are described on page 86. Swimming is naturally acquired behavior and is not taught to children. Pukapukans are not great swimmers or divers, but use the sea mostly for bathing, when they run or wade from the beach and then suddenly duck. Children are in the water a great deal; they play at water splashing, surface diving, and underwater swimming games. Adults rarely play swimming games. In diving for *Tridacna* shellfish, adults dive from the surface by elevating the buttocks and depressing the head.

Casual observation indicates that left-handedness (*lima mayui*) is common in both children and adults. This was observed in adults in the use of implements and in the handling of darts in games, in children when dancing.

The toes are used extensively for picking up objects from the ground and for holding objects when both hands are engaged and when purchase is required.

Both men and women pole and paddle canoes today. The individual poles a canoe sitting, standing on the floor of the canoe, or standing with one foot on each gunwale. Paddling is done on either side of the canoe with equal ease. The paddle is grasped with both hands, fingers pointing to the front, thumbs to the rear. It is unusual for a canoe crew to sing or chant in rhythm to the paddling. The paddle is plunged vertically into the water and the stroke is fore and aft. Two types of strokes are used: *ale atu pele* is a long, even, powerful stroke with the full stretch and strength of arms and shoulders, dipping the paddle blade deep into the water, and used for long distances when consistent power is required; *ale manuga* is a short, quick, shallow stroke,

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221 [312] and talo are scarce. At the present time, the island water supply from concrete cisterns is rationed out to the families of the island from July until the first heavy rains.

The seasonal changes, though important for living conditions, have not involved any great seasonal rhythm of labor. Whereas house repairing for the western village is in October and November, that for the eastern village is in April and May, when the steady winds blow from the south and east. There is a tendency to reserve activities centered round the building of new houses and canoes for the cooler midyear months, and at the beginning of this period there is a spurt of building in all villages. Other activities go on throughout the year. Twice each year, depending on the maturity of the plants, all the talo beds on Wale and Motu Ko are fertilized. With the arrival of May and the beginning of the best deep-sea fishing, there is a general repairing of the fishing gear, including canoes, paddles, hooks, fishline, and anchor line. Today there is seasonal activity in copra making, the people from each village going to their respective reserves from March to April, and a second time from August to September.

Water

312 315 Water for domestic use was formerly obtained exclusively from seep holes and wells sunk close to the beach above high tide level. This slightly brackish water is still used for bathing and other purposes by all three villages when they visit their reserves and, owing to the distant location of a better supply, by most Yato villagers all the time. Today three concrete cisterns on Wale store water draining from the church and courthouse roofs. This water is used for drinking and washing in the rainy season, in the dry season for drinking only.

Plant Life

134 241 137 The soil of the whole atoll is poor, mostly infertile sand and coral gravel, and its consequente vegetation is sparse. Tropical bush grows luxuriantly in a few sections. Of the food plants, coconuts grow well, but talo and bananas grow only in excavated pits that have been filled with plant material and must be fertilized with leaves and ferns twice each year. As an aid to growth of bananas, old pieces of iron are buried among the roots. A few papaya and limes grow on Motu Ketawa. The kava plant (*Piper methysticum*) does not grow on the atoll. Specimens of all plants growing in Pukapuka, as identified by Marie C. Neal, E. H. Bryan, Jr., and F. Raymond Fosberg, are recorded in the following list:

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5. The absorbing organ of the cotyledon (*uto*) of the nut at the *uto* stage is eaten raw (*uto mata*) with a *hinaki* of the *ipiipi* flesh that surrounds the *uto* or is baked (*uto tao*) without being removed from the shell.

6. A recipe (probably an importation from the Cook Islands) was given for *uto poi*. Baked *uto* is removed from the shell and pounded with the *tuki* in a *kumete* until soft, then coconut liquid of the *niu muta* or *niu kalokalo* is added to the soft *uto* and the whole thoroughly mixed and eaten.

7. A dish called *yomi* was prepared in former times by allowing the flesh of a drinking nut at the *niu matamatomoto* or *niu mata* stage to rot in sea water for 8 to 10 days or until the flesh was thoroughly decayed. Coconut cream was mixed with the flesh, the whole was baked, and *yomi*, a thick, sour, creamy food resulted. Tradition states that *yomi* was the favorite food of the Yayake people when they lived on Motu Ko and was served by them with a *hinaki* of *likoliko* talo pudding.

8. From the nut at the *yakali* or *niu papaku* stage is obtained the *ipiipi*, a common *hinaki* for fish or other foods in the absence of talo. From this *ipiipi* also is made *lolo* (coconut cream). The nut is split into two and grated (*sulu*) on the grater (*tuai*). The *ipiipi* is grated either finely or coarsely, depending on the excellence of the grater, whether the teeth are perfect and closely set or imperfect and irregularly spaced. To grate finely is *sulu wakalilili;* to grate coarsely, *sulu wakapatapata*. These two types of grating are merely the characteristic results of particular *tuai* and are not related to the preparation of special dishes. It is desired at all times to avoid coarse grating: in proportion as the grating is coarse, the amount of *lolo* wrung from the gratings is less; and the finer the grating, the more the *lolo*. The gratings are picked up in the wringer of coconut husk fibers (*tauanga*) and wrung (*kahu*) into wooden bowls or coconut shells. The refuse (*ota*) left in the wringer after the oil is expressed is thrown away.

COCONUT OIL

Coconut oil is used as a hair beautifier and skin perfume. To rub oil into the hair is *omoomo*; to perfume the skin, *pomi*. Oil was used mainly in the evening after bathing, when the day's work was finished. The three kinds of coconut oil are made as follows:

1. *Valikonga: yakali* flesh is grated and wrung out into a coconut cup; shredded leaves and flowers of sweet-scented plants are added to give fragrance; according to preference, *tiale*, *nau*, *nonu*, or *mouli* leaves and flowers are used. The preparation is baked over night in the oven and is ready for use the next day.

2. *Vinu tutu: yakali* flesh is grated; leaves and flowers are added; the gratings are not wrung out but are placed in a coconut shell and exposed to direct sunlight for two or three days or until the gratings disintegrate and the oil separates; the oil is then wrung out into a shell. A hot stone previously fired in the oven is dropped into the oil, which is allowed to cool before being used.

3. *Vinu takutaku tutu:* the flesh of the *takutaku* nut, which can not easily be grated, is rubbed (*olo*) on the *papa takutaku* rubbing stone. Flowers are added to the rubbings and the whole is wrung out and placed in the sun until the oil disintegrates. It is then fired with a hot stone.

All types of oil are considered equally desirable. A woman makes the one she prefers. The most common is *valikonga*, as *yakali* nuts are more readily available than *takutaku* nuts. The importance of oil to the Pukapukans is well brought out in the stories and chants, where the lover always makes a careful toilet with oil before leaving the house.

Deformity of the teeth was noticed in one man, about 55 years old, who possesses a double set of back teeth, presumably milk teeth and second set, growing side by side from the same gum. Two other very old men were noticed whose four front incisors inclined inward at an angle of about 45 degrees to the gum. I neglected to inquire whether this was due to accident or to the chewing of certain foods.

CARE OF THE BODY

Adults and children wash (*palupalu*) their faces with fresh water on awakening in the morning, pouring water into the palm of the hand and so applying it to the face. Adults generally do not bathe (*takele*) in the sea until evening, when they have a long bath and gossip with friends. When bathing in the sea by day, they now wear old clothes. Formerly a woman did not remove her kilt. After bathing she laid it out to dry and put on a spare one. Presumably men bathed in their malos. Today, as formerly, men and women bathe naked in the sea at night. A fresh-water rinse is taken after a sea bath when water is available. Coconut oil (*yinu*) was formerly always applied (*omoomo*) to the hair, face, and body after a bath to make the hair stand out and the skin shiny. Today it is applied only on special occasions, for it is not possible to spare coconuts to make sufficient oil for everyday use.

Delousing (*vakule na wutu*) is performed at any time by a girl for another girl or older woman, by a mother for a daughter. The lice (*wutu*) are killed by chewing. Presumably it was done for men, when they wore their hair long, by wives or other female relatives, but with their hair cut short, lice apparently present no problem to them. Small boys and some girls today have their hair cut very short as a prophylactic measure against lice and scalp infection. Grey hairs (*lau ulu yina*) are sometimes pulled out of a man's head by his wife. This is termed *wuti na yina*.

Body hair (*wulwulu*) on man or woman was not removed but was considered an object of great beauty. At infrequent intervals a man removed the beard from his face by sawing at it (*vulwulu*, to scrape) with a knife of the jaw bone of the *palo* fish. Today most men shave (*sulwulu*) with a razor once a week before going to church.

Whitish blotches (*tauetone*) on the skin resulting from *tinea* infection were highly prized as making the skin more beautiful. The chants contain many references to this; a lover commonly praises the number and size of the blotches on the skin of his mistress.

Bodily hygiene of infants and children is discussed elsewhere (p. 276). Adults, like children, urinate (*wini*) anywhere outside the house. Adults evacuate in the sea and clean themselves with a coconut husk or a stone and